

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for producing sand cores for foundry, the method comprising the operations of:

defining a moulding cavity;

introducing a mixture of sand and hydrated binder into said moulding cavity so as to produce a mass of sand, which reproduces in a complementary way the shape of said moulding cavity; and

producing a passage through said mass of sand, of a flow of aeriform along at least one principal direction, so as to determine the consolidation of said mass of sand;

generating through said mass of sand a flow of aeriform directed at least in part in a radial direction with respect to said principal direction; and

defining at least one duct which outputs into said moulding cavity along a direction parallel to said principal direction and at least one duct which outputs into said moulding cavity along a radial direction with respect to said principal direction.

2. (Currently Amended) The method according to Claim 1, characterized in that it comprises:

defining a plurality of ducts which give out into the aforesaid moulding cavity;

introducing aeriform into said moulding cavity through a first set of said ducts;

and

extracting the aeriform of said moulding cavity through a second set of said ducts arranged with respect to the first set of said ducts so that said flow of aeriform will traverse said mass of sand along directions having at least one component along said principal direction and at least one component along a radial direction with respect to said principal direction.

3. (Cancelled)

4. (Original) The method according to claim 1 comprising:

defining a plurality of ducts which give out into said moulding cavity along directions that are parallel to one another; and

producing the passage of a flow of aeriform through said ducts which traverses said mass of sand along a path which includes at least one component along a direction orthogonal to the direction of said ducts.

5. (Original) The method according to Claim 1, characterized in that said

flow of aeriform comprises aeriform, such as air, that is heated and/or de-humidified.

6. (Original) The method according to Claim 1, characterized in that said

step of passage of aeriform through said mass of sand has a duration shorter than 120 seconds.

7. (Original) The method according to Claim 1, characterized in that said

step of passage of aeriform through said mass of sand has a duration shorter than 90 seconds.

8. (Original) The method according to Claim 1, characterized in that said

step of passage of aeriform through said mass of sand has a duration shorter than 60 seconds.

9. (Currently Amended) An apparatus for producing sand cores for foundry,

comprising:

a pair of half-moulds, adapted for movement with respect to one another along a principal direction between an open position and a closed position, in which the half-moulds in the closed position define a moulding cavity,

means for introducing into the aforesaid moulding cavity a mixture of sand and binder,

a plurality of channels, which extend through the aforesaid half-moulds and give out into the aforesaid moulding cavity,

means for generating a flow of aeriform through said channels and through said moulding cavity,

~~characterized wherein in that~~ the aforesaid ~~ducts~~ channels are arranged so as to produce the passage of said flow of aeriform through said moulding cavity along directions having at least one component parallel to said principal direction and at least one radial component with respect to said principal direction; and;

characterized in that at least one of said half-moulds comprises at least one channel, which gives out into the aforesaid moulding cavity along a direction parallel to the aforesaid principal direction, and at least one channel, which gives out into the aforesaid moulding cavity along a radial direction with respect to said principal direction.

10. (Cancelled)

11. (Original) The apparatus according to Claim 9, characterized in that at least one of said half-moulds has a plurality of ducts, which give out into the aforesaid moulding cavity along directions that are parallel to one another, and in that a first part and a second part of said ducts can be connected to respective lines at different pressures, so as to establish a flow of aeriform from said first part of ducts to said second part of ducts, said flow of aeriform traversing said moulding cavity with at least one radial component with respect to said principal direction.

12. (Original) The apparatus according to Claim 9, characterized in that said ducts are divided into sets connected to respective chambers, each of said chambers being connectable to a respective line at a pressure of aeriform selectively determined.

13. (Original) The apparatus according to Claim 12, characterized in that each of said chambers is associated to respective valve assemblies, which can be controlled for

connecting selectively the respective chamber to at least one between a source of aeriform under pressure and/or a source of negative pressure.

14. (Original) The apparatus according to Claim 9, characterized in that it comprises a set of extractor elements for expulsion of the core formed by said mass of sand in said moulding cavity, at least one of said extractor elements being provided with a duct communicating with said moulding cavity for supply or extraction of a flow of aeriform.

15. (New) An apparatus for producing sand cores for foundry, comprising:
a pair of half-moulds, adapted for movement with respect to one another along a principal direction between an open position and a closed position, in which the half-moulds in the closed position define a moulding cavity;

means for introducing into the moulding cavity a mixture of sand and binder;

means for generating a flow of aeriform into the moulding cavity;

a plurality of channels, which extend through the half-moulds and output to the moulding cavity, the channels being arranged so as to produce the passage of said flow of aeriform through said moulding cavity along directions having at least one component parallel to the principal direction and at least one radial component with respect to the principal direction;

one of said half-moulds having a first channel that outputs a flow of aeriform into the moulding cavity along a direction parallel to the principal direction, and a second channel that outputs a flow of aeriform into the moulding cavity along a radial direction with respect to said principal direction; and

means for changing a direction of the flow of the aeriform from a first direction to a second direction, the direction being reversible.

16. (New) The apparatus of claim 15 further comprising:
a sub-chamber in each of the half-moulds, one sub-chamber on each side of the moulding cavity along the radial direction, the sub-chambers being partitioned one from another;
and

a plurality of valve assemblies and channels associated with each of the sub-chambers, the valves and channels being capable of effecting a radial flow of aeriform between the sub-chambers.

17. (New) The apparatus of claim 15 further comprising:

a first path for the flow of aeriform into the moulding cavity, the flow of aeriform entering the moulding cavity from a first channel substantially oriented in the principal direction; and

a second path for the flow of aeriform through the moulding cavity, the second path gradually deviating from the principal direction and being gradually oriented in the radial direction, the flow of aeriform being directed towards sides of the moulding cavity along the radial direction; and

a third path for the flow of aeriform through the moulding cavity, the third path gradually deviating from the radial direction and being gradually oriented in the principal direction and exiting the moulding cavity through a second set of channels, the second set of channels being located on the opposite side of the moulding cavity with respect to the first set of channels along the principal direction.

18. (New) An apparatus for producing sand cores for foundry, comprising:

a pair of half-moulds, adapted for movement with respect to one another along a principal direction between an open position and a closed position, in which the half-moulds in the closed position define a moulding cavity;

means for introducing into the moulding cavity a mixture of sand and binder;

means for generating a flow of aeriform into the moulding cavity;

a plurality of channels, which extend through the half-moulds and output to the moulding cavity, the channels being arranged so as to produce the passage of said flow of aeriform through said moulding cavity along directions having at least one component parallel to the principal direction and at least one radial component with respect to the principal direction;

one of said half-moulds having a first channel that outputs a flow of aeriform into the moulding cavity along a direction parallel to the principal direction, and a second channel that outputs a flow of aeriform into the moulding cavity along a radial direction with respect to said principal direction; and

each of the half-moulds having a plurality of input channels, the plurality of input channels supplying the flow of aeriform into the moulding cavity, and a plurality of output channels, the plurality of output channels exhausting the flow of aeriform from the moulding cavity.

19. (New) The apparatus of claim 18 wherein the aeriform is dehumidified and hot air.

20. (New) The apparatus of claim 18 further comprising:

a first path for the flow of aeriform into the moulding cavity, the flow of aeriform entering the moulding cavity from a first channel substantially oriented in the principal direction; and

a second path for the flow of aeriform through the moulding cavity, the second path gradually deviating from the principal direction and being gradually oriented in the radial direction, the flow of aeriform being directed towards sides of the moulding cavity along the radial direction; and

a third path for the flow of aeriform through the moulding cavity, the third path gradually deviating from the radial direction and being gradually oriented in the principal direction and exiting the moulding cavity through a second set of channels, the second set of channels being located on the opposite side of the moulding cavity with respect to the first set of channels along the principal direction.